

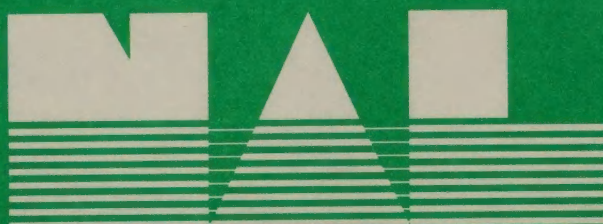
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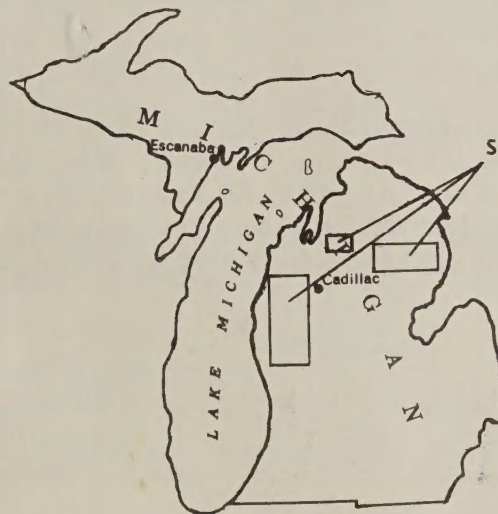
# Forest Insect & Disease Management

Evaluation  
Report

S- 11-75

August, 1975

SURVEY OF 1975 RED PINE PLANTATIONS IN LOWER MICHIGAN FOR SCLERODERRIS CANKER AND LATE PLANTING EFFECTS



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Daniel G. Mosher, Entomologist  
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## INTRODUCTION

Scleroderris canker of red pine is a disease caused by the fungus Scleroderris lagerbergii (Gremmen). During June, 1970 the disease was found in red pine seedbeds at U.S. Forest Service Toumey Nursery, Ottawa National Forest, Michigan. By 1973 the fungicide, daconil, had been tested and registered for control of Scleroderris canker. All red pine seedlings shipped in 1975 had been treated with daconil for three years to insure Scleroderris-free planting stock. The seedlings destined for Lower Michigan were lifted last to allow symptoms to develop if present. None were found. It was still necessary to conduct a field survey of planted areas to determine the full effectiveness of the daconil treatment. There was also concern over effects of the late planting date.

## OBJECTIVE

The objectives of the survey were to determine if Scleroderris canker symptoms developed after planting, if stands in the vicinity of the new plantations were infected, and whether late planting adversely affected seedling survival.

## METHODS

All red pine plantations established in 1975 on the Huron-Manistee National Forest, Michigan, and most of those established on the Kalkaska State Forest, Michigan, were examined for Scleroderris canker symptoms. Each plantation was surveyed on transects at 5-chain intervals



Orange color at base of infected needles - an early symptom of Scleroderris canker.

across the rows. One tree was examined where each survey line crossed a row. Examination across rows was used to reduce bias that may be introduced by poor planting in a given row. Each seedling was recorded as healthy, dormant (failed to initiate new growth after planting), or dead. On National Forest plantings the possible cause for mortality and dormancy was recorded. Red pine stands adjacent to the plantations also were examined for the incidence of Scleroderris canker. National Forest and Kalkaska State Forest personnel assisted in conducting the survey during June and July, 1975.

## RESULTS

Scleroderris canker of red pine was not found on any of the inspected red pine or in the red pine stands adjacent to the plantations.

Of the 8778 seedlings examined, about 36 percent had initiated new growth after planting and were classed healthy; 57 percent were dormant or had failed to initiate new growth after planting; and 7 percent were dead at the time of inspection. The Kalkaska State Forest and the Manistee National Forest were consistent in the percentage of trees failing to break dormancy. However, the Huron National Forest had almost twice as many trees failing to break dormancy as the other two areas (Table 1).

Table 1.--Tree condition on Huron-Manistee National Forest and Kalkaska State Forest, Michigan, 1975.

Forest	Examined			Percent		
	Number Planta- tions	Acres	Seedlings	Healthy	Dormant	Dead
Huron	10	295	3175	14	78	8
Manistee	10	305	3542	48	46	6
Kalkaska	9	275	2061	49	43	8
Totals	29	875	8778	37	56	7

The causes of mortality and failure to break dormancy were consistent for all three areas (Table 2).

Table 2.--Causes of mortality and dormancy on National Forests and State Forest in Lower Michigan, 1975.

Forest	Poor Planting	Mechanical Injury	Late Planting or Unknown
Huron	13%	1%	86%
Manistee	11%	2%	87%
Kalkaska	12%	1%	87%

## CONCLUSIONS

Based on the survey sample, it appears that the 1975 red pine stock is Scleroderris-free and that the adjacent red pine stands are Scleroderris-free.

The problem of failure to break dormancy after planting appears to have occurred as a result of holding the stock at the nursery until mid-May. The seedlings had initiated about one inch of new growth before shipment. The late-shipped stock that was planted first appears to have rebroken dormancy when compared to the late-shipped stock planted last. This condition was exhibited in one area where one-half of the plantation had been planted ten days prior to the other half. A majority of the trees had broken dormancy in the early planting but had failed to break dormancy in the later planting.

## RECOMMENDATIONS

Inspect the 1975 red pine plantings on the Huron-Manistee National Forest in 1976 to determine the condition of the trees that failed to break dormancy.

Ship earlier since the quarantine has been lifted.

Plant the seedlings as soon as possible after receipt of shipment.



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